Claims

1. An inflator for an air bag comprising

a tubular inflator housing which is provided at axial both sides thereof with opening portions,

diffuser portions which are mounted at axial both ends of the inflator housing and are provided with a gas discharging port for discharging pressurized medium flowing out from the opening portions into an air bag,

rupturable plates which closes either of the openings of the inflator housing or the gas discharging port to seal off the pressurized medium inside, and

igniters which are provided to correspond to the respective rupturable plates and rupture the rupturable plates,

wherein narrow paths for regulating respective flow amounts of the pressurized medium are provided at axial both sides of the inflator housing, and

a gas flow path sectional area (A) of either one of the narrow paths and a gas flow path sectional area (B) of the other narrow path are different from each other.

2. An inflator for an air bag according to claim 1, wherein the narrow paths are plural gas discharging ports formed in the respective diffuser portions, and

a total opening area of gas discharging ports formed at one of the diffuser portions is different from a total opening area of gas discharging ports formed at the other of the diffuser portions.

3. An inflator for an air bag according to claim 1, wherein the narrow paths are opening portions provided at the axial both end portions of the inflator housing, and

an opening area of the opening portion formed at one of the axial end portions of the inflator housing is different from an opening area formed at the other of the axial end portions of the inflator housing.

4. An inflator for an air bag according to claim 1, wherein the diffuser portions include igniters which rupture the respective rupturable plates,

the narrow paths are clearances leading to the gas discharging port and formed between inner faces of the diffuser portions and outer peripheral surfaces of the igniters, and

the minimum diametrical sectional area of the clearance between the inner peripheral surface of one of the diffuser portions and the outer peripheral surface of a corresponding igniter is different from the minimum diametrical sectional area of the clearance between the inner peripheral surface of the other diffuser portion and the outer peripheral surface of the other igniter.

5. An inflator for an air bag according to claim 1 or 2, wherein a partition plate expanding in a diametrical direction is disposed in the interior of the inflator housing, and a hole portion formed to have a flow path sectional area of a gas which is further smaller the narrow path having a smaller flow path sectional area of a gas of the narrow paths formed at the axial both sides of the inflator housing.

6. An inflator for an air bag according to claim 1 or 2, wherein a partition plate expanding in a diametrical direction is disposed in the interior of the inflator housing, a hole portion is provided in the partition plate, the hole portion is closed by a closing member attached from a side in which the narrow path with a larger flow path sectional area of a gas of the narrow paths formed at the axial both sides of the inflator housing is formed.

7. An inflator for an air bag according to claim 1 or 2, wherein one of the two diffuser portions mounted at the axial both ends of the inflator housing connects to an air bag or air bag portion existing in the vicinity of a upper lateral part of a passenger and the other diffuser portion connects to another air bag or another air bag portion existing in the vicinity of a lower lateral part of the passenger, and

a gas flow path sectional area (A) of the narrow path formed at the diffuser portion connecting to the air bag or the air bag portion existing in the vicinity of the upper lateral part of the passenger is formed to be smaller than a gas flow path sectional area (B) of the narrow path formed at the diffuser portion connecting to the air bag or the air bag portion existing in the vicinity of the lower lateral part of the passenger.

8. An inflator for an air bag according to claim 1 or 2, wherein one of the two diffuser portions mounted at axial both ends of the inflator housing connects to an air bag or air bag portion existing in the vicinity of a upper lateral part of a passenger and the other diffuser portion connects to another

air bag or another air bag portion existing in the vicinity of a lower lateral part of the passenger, and

a gas flow path sectional area (A) of the narrow path formed at the diffuser portion connecting to the air bag or the air bag portion existing in the vicinity of the upper lateral part of the passenger is formed larger than a gas flow path sectional area (B) of the narrow path formed at the diffuser portion connecting to the air bag or the air bag portion existing in the vicinity of the lower lateral part of the passenger.

9. An air bag system including an air bag and an inflator for an air bag for inflating an air bag,

wherein the air bag has a first gas introducing port and a second gas introducing port,

an inflator according to claim 1 or 2 is used as the inflator for an air bag, and

respective diffuser portions provided to the inflator for an air bag are each connected to different gas introducing ports.

10. An air bag system according to claim 9, wherein an inner space of the air bag is partitioned into a space connecting to the first gas introducing port and a space connecting to the second gas introducing port, and the spaces are in communication with each other at a portion.

11. An air bag system according to claim 9 or 10, wherein the first gas introducing port connects to an air bag portion existing in the vicinity of an upper lateral part of a passenger and the second gas introducing port connects to another air bag

portion existing in the vicinity of a lower lateral part of the passenger, and

a gas flow path sectional area (A) of a narrow path formed at a side of a first diffuser portion connecting to the first gas introducing port is formed smaller than a gas flow path sectional area (B) of a narrow path formed at a side of a second diffuser portion connecting to the second gas introducing port.

12. An air bag system according to claim 9 or 10, wherein the first gas introducing port connects to an air bag portion existing in the vicinity of an upper lateral part of a passenger and the second gas introducing port connects to another air bag portion existing in the vicinity of a lower lateral part of the passenger, and

a gas flow path sectional area (A) of a narrow path formed at a side of a first diffuser portion connecting to the first gas introducing port is formed larger than a gas flow path sectional area (B) of a narrow path formed at a side of a second diffuser portion connecting to the second gas introducing port.

13. An air bag system including plural air bags and an inflator for an air bag for inflating the air bags, wherein

an inflator according to claim 1 or 2 is used as the inflator for an air bag, and

different air bags of the plural air bags are mounted to respective diffuser portions provided to the inflator for an air bag.

14. An air bag system according to claim 13, wherein a gas flow path sectional area (A) of a narrow path formed at a

side of a first diffuser portion mounted with an air bag of the plural air bag which exists in the vicinity of an upper portion of a passenger is formed smaller than a gas flow path sectional area (B) of a narrow path formed at a side of a second diffuser portion mounted with an air bag of the plural air bags which exists in the vicinity of a lower portion of the passenger.

15. An air bag system according to claim 13, wherein a gas flow path sectional area (A) of a narrow path formed at a side of a first diffuser portion mounted with an air bag of the plural air bags which exists in the vicinity of an upper portion of a passenger is formed larger than a gas flow path sectional area (B) of a narrow path formed at a side of a second diffuser portion mounted with an air bag of the plural air bags which exists in the vicinity of a lower portion of the passenger.

16. An inflator for an air bag comprising an inflator base portion provided with an ignition means which receives an ignition current to be activated, an inflator housing and a gas discharging port which discharges a gas inside the inflator housing to the outside at the time of activation, and

a tubular case portion which covers the entire or part of an outside of the inflator housing to cover at least the gas discharging port,

wherein only the axial both sides of a periphery of the case portion is provided with a gas ejecting port unevenly and the inner space of the case portion is sealed off but communicates the outside only through the gas ejecting port,

a gas communication space which is an annular space having

substantially a uniform width and guiding a gas discharged from the gas discharging port to the gas ejecting ports is secured between the inflator housing and the case portion, and

in the gas ejecting ports provided at the axial both sides of the case portion, a total opening area (A') of the gas ejecting port provided at one axial end portion is different from a total opening area (B') of the gas ejecting port provided at the other axial end portion.

17. An inflator for an air bag according to claim 16, wherein the inflator housing is formed in a tubular shape, and the ignition means is installed at one end of the inflator housing, and

the case portion is formed in a tubular shape in which one end portion is closed and the other end portion is opened, and an opened end portion is closed by coming in close contact with an outside of the inflator base portion.

18. An inflator for an air bag according to claim 17, wherein a diffuser portion formed with a gas discharging port is provided at the other end portion of the inflator housing, and the diffuser portion is opposed to the closed end portion of the case portion.

19. An inflator for an air bag according to claim 17, wherein a recess portion is formed on an outer peripheral surface of the inflator base portion, and the opened end portion of the case portion is fixed by crimping to the recess portion.

20. An inflator for an air bag according to claim 16 or 17, wherein a flow path sectional area of a gas communication

space secured in the inner space of the case portion is larger than a smaller total opening area of the total opening areas of the gas ejecting ports different at the axial both sides of the case portions.

21. An inflator for an air bag according to claim 16 or 17, wherein a flow path sectional area of a gas communication space secured in the inner space of the case portion is larger than a larger total opening area of the total opening areas of the gas ejecting ports different at the axial both sides of the case portions.

22. An inflator for an air bag according to claim 16 or 17, wherein the gas ejecting ports formed at the axial both end portions of the case portion all are disposed in a circumferential direction.

23. An air bag system including an air bag and an inflator for an air bag for inflating the air bag, wherein

the air bag has a first gas introducing port and a second gas introducing port,

an inflator for an air bag according to claim 16 or 17 is used as the inflator for an air bag, and

gas ejecting ports provided at axial both sides of a case portion of the inflator for an air bag are each connected to different gas introducing ports.

24. An air bag system including an air bag, an inflator for an air bag for inflating the air bag, and a tubular case portion which covers the whole or part of an outside of the inflator for an air bag, wherein

an air bag has a first gas introducing portion and a second gas introducing portion,

the case portion covers at least a gas discharging port provided in the inflator for an air bag, only the axial both sides of a periphery of the case portion is provided with a gas ejecting port unevenly and the inner space of the case portion is sealed off but communicates the outside only through the gas ejecting port,

a gas communication space which is an annular space having substantially a uniform width and guiding a gas discharged from the gas discharging port to the gas ejecting ports is secured between an outer surface of the inflator housing and the case portion,

in the gas ejecting ports provided at the axial both sides of the case portion, a total opening area (A') of the gas ejecting port provided at one axial end portion is different from a total opening area (B') of the gas ejecting port provided at the other axial end portion, and

the gas ejecting ports provided at the axial both sides of the case portion are each connected to the different gas introducing ports.

25. An air bag system according to claim 24, wherein the air bag system includes a module case which accommodates the air bag and the inflator for an air bag, and the case portion is provided in the module case.

26. An air bag system according to claim 23 or 24, wherein an inner space of the air bag is partitioned into a space

connecting to the first gas introducing port and a space connecting to the second gas introducing port, and the spaces are in communication with each other at one portion.

27. An air bag system according to claim 23 or 24, wherein the first gas introducing port connects to an air bag portion existing in the vicinity of a upper lateral part of a passenger, and the second gas introducing port connects to another air bag portion existing in the vicinity of a lower lateral part of the passenger, and

a total opening area (A') of the first gas ejecting port connecting to the first gas introducing port is formed smaller than a total opening area (B') of the second gas ejecting port connecting to the second gas introducing port.

28. An air bag system according to claim 23 or 24, wherein the first gas introducing port connects to an air bag portion existing in the vicinity of a upper lateral part of a passenger, and the second gas introducing port connects to another air bag portion existing in the vicinity of a lower lateral part of the passenger, and

a total opening area (A') of the first gas ejecting port connecting to the first gas introducing port is formed larger than a total opening area (B') of the second gas ejecting port connecting to the second gas introducing port.

29. An air bag system including plural air bags and an inflator for an air bag for inflating the air bags, wherein

an inflator for an air bag according to claim 16 or 17 is used as the inflator for an air bag, and, regarding the plural

air bags, different air bags are mounted to the respective gas ejecting ports provided at axial both sides of the case portion of the inflator for an air bag.

30. An air bag system including plural air bags, an inflator for an air bag for inflating the air bags, and a tubular case portion which covers the whole or part of an outside of the inflator for an air bag, wherein

the case portion covers at least a gas discharging port provided in the inflator for an air bag, only the axial both sides of a periphery of the case portion is provided with a gas ejecting port unevenly and the inner space of the case portion is sealed off but communicates the outside only through the gas ejecting port,

a gas communication space which is an annular space having substantially a uniform width and guiding a gas discharged from the gas discharging port to the gas ejecting ports is secured between an outer surface of the inflator housing and the case portion,

in the gas ejecting ports provided at the axial both sides of the case portion, a total opening area (A') of the gas ejecting port provided at one axial end portion is different from a total opening area (B') of the gas ejecting port provided at the other axial end portion, and

the respective plural air bags is mounted to the respective gas ejecting ports formed at axial both sides of the case portion of the inflator for an air bag.

31. An air bag system according to claim 30, wherein the

air bag system includes a module case which accommodates the air bag and the inflator for an air bag, and the case portion is provided in the module case.

32. An air bag system according to claim 29 or 30, wherein a total opening area (A') of a first gas ejecting port mounted with an air bag of the plural air bags which exits in the vicinity of an upper portion of a passenger is formed smaller than a total opening area (B') of a second gas ejecting port mounted with an air bag of the plural air bags which exists in the vicinity of a lower portion of the passenger.

33. An air bag system according to claim 29 or 30, wherein a total opening area (A') of a first gas ejecting port mounted with an air bag of the plural air bags which exits in the vicinity of an upper portion of a passenger is formed larger than a total opening area (B') of a second gas ejecting port mounted with an air bag of the plural air bags which exists in the vicinity of a lower portion of the passenger.